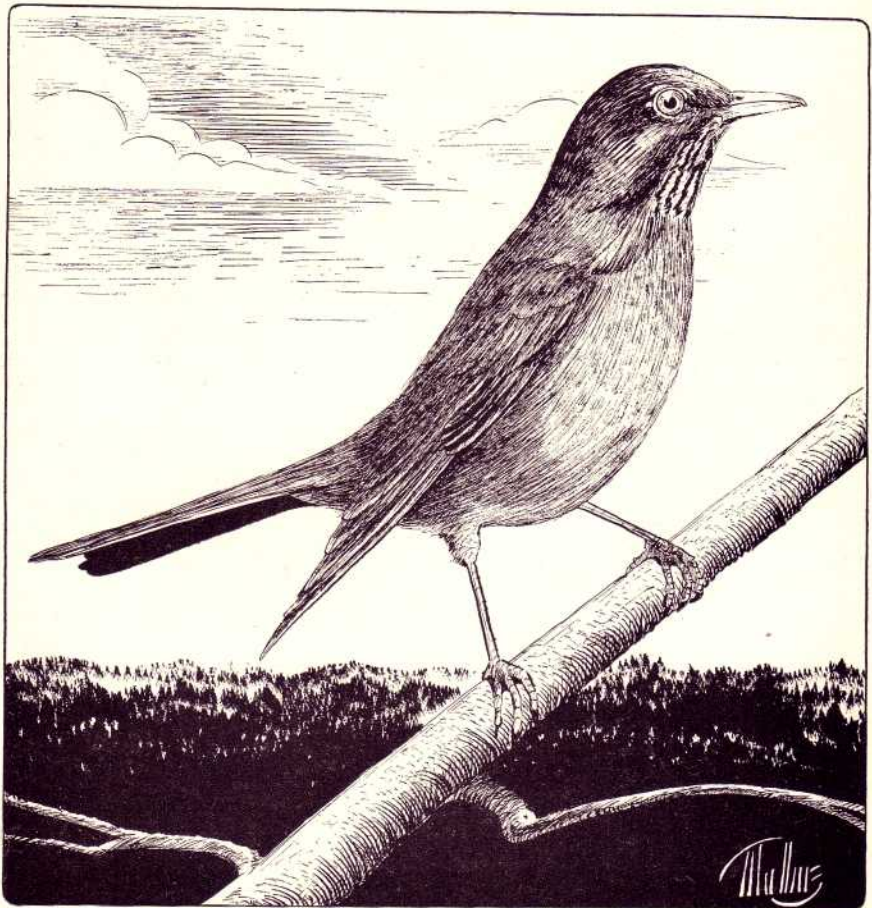


YOSEMITE NATURE NOTES



Western Robin

Yosemite Nature Notes

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A RE-EXAMINATION OF THE ICE CAVE OF DANA GLACIER

By Ranger Naturalist Allen Waldo

September 1, 1947, I accompanied Ranger Naturalist Carl Sharsmith on one of his naturalist hikes. I was eager to do so because on an earlier hike, which I had conducted to this same glacier, our group had discovered an ice cave and I wanted to re-examine this to see if it might not now be possible to enter it.

A cursory examination from the base of the glacier showed the cave to be much more open than it had been upon the first visit. When we climbed to the cave we found that, with the aid of a rope, and by cutting two steps in the ice with our ice axe, it was very simple for the whole group to descend and enter. Several facts seem worth recording as a result of this visit.

First of all, the large volume of rushing water which had been so clearly audible upon the first visit was now entirely gone. The floor of the cave was dry solid rock, or in some places solid ice. There was no visible stream left, nor could one be heard.

Great ribs of translucent ice were present on the cave roof, and examination showed them to fit perfectly the shape of the rock surface over which they had last flowed. As might be expected, occasional boulders and smaller particles of rock, which had been frozen into the ice and dragged along the rock floor, were now left in the ceiling of the cave from which they were slowly melting.

The cave surfaces had no stalactite or stalagmite formation, and there was very little dripping from the roof, practically all surface melting dripping in only around the cave opening. This cave did contain, however, of few wavy curtain- or drapery-like formations hanging from the roof. These only hung down from one to three inches and were from a foot to several feet in length. They were entirely similar in shape and appearance to much larger, wavy, curtain-like formations found in some limestone caves. One portion of the cave, against which the moist air blew, was covered by white frost instead of the clear to translucent ice characteristic of the rest.

Further examination indicated that the cave was the result of two factors. One of these was the fact that the glacier was here descending a particularly steep, step-like section of rock face. The other was that as the ice came over this surface it was being obstructed from below. This caused a buckling up in the vicinity of the riser of this step, causing the cave. This strong resisting pressure and buckling were shown not only by the presence of the cave but also by the twisted, tightly folded and compressed ice which was present at the top and bottom of the side wall which held up the roof. The contortions produced by the flow and the resistance to it were very clearly shown in these two areas. This pre-

vented the pressure of the ice above from simply forcing the glacier to flow down and fill in the open space,

and held the roof strongly enough so that crevasses did not develop and allow the roof to drop in.

FISH PLANTING—FINGERLINGS OR LEGAL FISH IN NATIONAL PARKS?*

By Duane Jacobs, Assistant Chief Ranger

Trout were first introduced in the high country of what is now Yosemite National Park in 1878, at which time plants were made in Kibbie, Eleanor, Vernon and Laurel Lakes. By wise selection, or more likely due to being the only species available, these first plants were native McCloud river rainbow.

In 1930 Fred J. Foster, Fish Culturist for the Bureau of Fisheries, wrote: "Lake Eleanor contains rainbow trout as the only species and these are robust fish of beautiful coloring. By all means, no other species should be introduced."

1879 is the oldest record found of trout planting in Yosemite Valley, then a State park. In the Grand Register of the Cosmopolitan House, M. A. Blade of Union City, Pa., wrote on April 1, "Came in with the Yosemite Fish Commissioners with twenty thousand young trout for the different streams of the Valley."

Prior to these early dates there were only two known fish in the area now embraced by Yosemite National Park. These were the native rainbow and the western sucker. Both were found only in the Merced River.

During the early nineties a vigorous program of fish planting was begun with the State Fish and Game Commission furnishing the fry and fingerlings and Army troops planting them in park waters.

As the Service policy was formulated and strengthened from time to time, stocking of park waters was

narrowed to a planned program of only three main species. Of these, the rainbow make up by far the largest part of the plant each year. Eastern brook and brown trout continue to be planted in waters already occupied by them and in which they do well. Golden trout have been introduced in several streams and lakes of the higher elevations and are successfully reproducing themselves.

From the earliest official fish planting in Yosemite down through the years to the present time, a close cooperative agreement has existed between the California Fish and Game Commission and the National Park Service. They have furnished the eggs and fry, reared them to planting size, and we have done the planting. Throughout all this period this agreement has been a successful one. Now, as in the past, we enjoy a close and cooperative spirit of helpfulness on the part of these State men.

I believe that few can deny that this has been a successful program if they take into consideration these two factors:

1. The intent has been to provide a medium of sport and recreation for those desiring to fish under conditions as nearly natural as possible while enjoying the other natural features and wonders of a national park.

2. In spite of extensive use by many thousands of anglers yearly, it still offers one of the best fishing areas of size and magnitude in the entire State of California. This is not

*Extracts from a paper read at the Regional Naturalists Conference, Region Four, National Park Service, held in Yosemite April 14-17, 1948.



a personal opinion alone but has been wrung in many cases from some of our most severe critics—"the meat fishermen."

The discussion usually starts in the form of a challenge: "When are you going to do something about fishing? The fish are getting smaller each year and harder to catch. I have been fishing here for twenty years, etc." This fellow, under pressure, will reluctantly admit that the reason he has fished here so many years is because there's better trout fishing to be had here than other places he's tried.

"But we must do something about it." And here comes the argument for planting legal size fish, embellished with all sorts of high sounding promises for better fishing. Yes, better fishing for the fellow who is content to follow behind the fish truck and take a limit of liver-fed, anemic trout that will rise to anything.

There is no intent to argue here that a given number of legal trout released during or shortly before open season so that they can be caught out before succumbing to nature's rigors, will not produce a great-

er yield than a like number of fingerlings eventually would. However, even proponents of large trout plantings now try to avoid such plantings in the fall after the season is closed, since few of them apparently survive the winter to add to next season's catch. It is believed that this type of trout propagation boils down to a business involving dollars and pounds of trout, and surely a national park should be the last place to establish an "open air fish market."

In this connection I wish to quote from an article appearing in the September-October, 1944 issue of "Outdoor America," entitled, "Wild Trout Fishing Endangered in National Parks." This article was written by Dr. Albert S. Hazzard, Director of the Institute for Fisheries Research for the Michigan Department of Conservation. Dr. Hazzard is in the business of raising legal trout for the lakes and streams of Michigan, yet he takes time out and properly chastises us for giving in to pressure for planting large trout.

"The National Parks were established by Congress to preserve for all time outstanding national and his-

toric areas. The woods, waters and wild-life are to be kept as primitive and undisturbed as possible. Wild birds and game animals are to be seen but not hunted. Trees spring up where they will, grow old and die, without thought of the lumberman's interest. Waterfalls unharnessed for irrigation and power pursue their natural courses. Wildflowers are to be enjoyed but not picked. Only the fish may be harvested by the visitor. Fortunate it is that the founders of the parks did not forbid fishing, because these areas provide exceptional recreation to the trout fisherman in settings unsurpassed for wildness and beauty. The wild character of the surroundings and the appearance and fighting ability of wild fish should be preserved, if anywhere, in the National Parks.

"Planting trout ready to catch cannot be justified and should not be tolerated in National Park waters. The best fish culturist living is unable to consistently produce large trout which have the appearance and fighting ability of native fish. In spite of efforts to control, disease and parasites find their way into the hatcheries and rearing stations and may be transmitted to wild stocks."

"The principal objection to such planting, however, is that it cheapens and renders artificial the sport of trout fishing by making it possible for any dabbler to catch his limit if he happens to be where a planting has recently been made and when conditions are right for fish feeding. Meat fishing, not recreation, is encouraged by planting large fish."

In this connection I hope you will find time to read and think over these two articles: "Survival of Hatchery Trout in Streams and Possible Methods of Improving the Quality of Hatchery Trout" by H. A. Schuck of the Fish and Wildlife Service in "The

Progressive Fish Culturist," January 1948. The other article is, "Producing Meat and Producing Sport Are Different" by Kenneth A. Reid, which appeared in the December-January, 1942-1943 issue of "Outdoor America."

The Merced River in Yosemite Valley has been used as the ideal example of what legal fish planting would mean to the thousands who fish it each summer. The fishing use is now so heavy that paths are literally worn up and down both sides of the river. Yet it is proposed to multiply this use by no one knows how many times, by artificial fishing.

What an attraction this would be! Hordes of campers swarming after the fish truck. It would surely rival the late "bear shows" and perhaps even overshadow them. The Service Policy states that "In cases where a lake or stream is of greater value without the presence of fishermen, there should be no stocking of such waters."

One proponent of large fish planting wrote rather recently that: "It should be noted that in the cold waters of Yosemite National Park, the 1-inch fish which we plant do not become legal size for at least three years and more likely four to five, dependent upon the altitude." One hears and reads a lot about cold water. Actually is not cold water the primary reason we have trout in our lakes and streams? Isn't it this same "cold water" that produces our gamey, fighting trout that makes the sport worthwhile?

The smallest fingerlings we plant usually run from 1½ to 2½ inches in length, and these are the fish packed into the back country. As for it taking them at least three years, and in some cases four to five years to reach legal size, we have ample proof to refute such a statement. In any case where it takes this long for fish to reach 6

inches in length, it could only mean that they were planted in waters already overstocked or devoid of food, and should not have been planted in the first place. Admittedly, we have made such mistakes and we have recognized them as such.

There are statements made that only five per cent of our fingerlings planted survive to reach the creel. If these people had ever been able to convince the men whom I have described as carrying this work on through these many years, that their efforts have been mostly wasted, we certainly would not have the lively interest and willingness on their part to continue this work. They know it simply is not so.

To secure favorable survival percentages in planting fingerlings, advantage must be taken of all natural conditions when they are released, e.g., cover for protection against big fish, water currents and food supply. They must be well distributed, especially in stream planting.

The type and condition of the fingerling being planted is of primary importance. Fall spawning rainbow which have been cultivated by the State in their big fish program, are poorly adapted to our needs, especially when they have been heavily fed to induce fast growth. They are pot bellied and flabby, and are the first to succumb during transportation and after planting. Our need is for hardy, native, gamey fish which after planting will quickly adapt themselves to natural conditions. Our native rainbow spawn in some cases from February through June when the water is high, and not in the fall when it is low.

We have an excellent example of this in the records. During late October of 1946, after our season was closed, we planted 2,600 of these fall spawners in Siesta Lake adjacent

to the new Tioga Road. This lake is rather small and shallow but abounds with fish food. Never has there been a poor trout taken here. These fish when planted were approximately 4 inches in length and quite heavy, and should have easily reached legal size by the following spring, yet all died during the winter, as far as we could tell. Yet both eastern brook and loch leven were still being caught, some of these remaining from the original plant in 1932.

We have no quarrel with the State program of cultivating fall spawning rainbows. It is undoubtedly well fitted in their plan of producing large fish in the hatcheries and rearing ponds before releasing them.

We believe the material obtained from the Lake Eleanor egg taking station when it was in operation, was the best possible quality of fish for park stocking purposes. They are native wild fish of pure strain and have successfully thrived and reproduced themselves there for the past seventy years. Operations were discontinued there due to the war, but it is hoped it may be reactivated in the near future.

Unfortunately we cannot give exact figures as to actual fishing use of park waters, nor the exact number of fish taken annually. Limited personnel during the past several years has simply ruled out the possibility. However, some spot checks were made during the past season and after careful study of known use in some areas, we arrived at one hundred thousand fishing days during the 1947 season. By figuring an average of four trout per day of fishing we can reasonably estimate an annual take of 400,000 fish.

This gives us an idea of the great use being made of these waters by fishermen. No wonder they are getting smaller and harder to catch! Yet

when we consider that a yearly average of slightly less than 900,000 fingerlings have been planted for the past eight years, who can say that our program has not been successful? Of course we realize that a sizeable percentage of fish caught that make up the overall take, comes from natural reproduction, but this is exactly what we are working for in order to have well rounded trout fishing.

Let's take inventory and find out what we should have and how to best keep it in the desired balance.

The first correct step in such a program can only be a thorough and complete scientific study of all trout-bearing waters. All lakes and streams should then be cataloged according to their class, and current up-to-date records maintained of conditions. In the case of Yosemite alone this would require the full time services of an aquatic biologist at least two and probably three years to get such a program laid out and under way. He should be assisted by a ranger who has aptitude for such work and who will be in a position to carry it on. Surely this is not too much to ask in return for perpetuating well balanced, natural trout fishing in the parks.

Then let us look to some of the more basic musts of conservation. The **length of open season** is of primary importance. Ten years ago, we succeeded in cutting the open season, one month in the spring to give the rainbow a chance to spawn, and two weeks off in the fall to give the eastern brook the same chance. It appears we would be justified in cutting at least another two weeks off in the fall, and there is some thought that we should eventually come to a ninety day season that would match the heavy visitor influx

of this corresponding time.

Limits. For the past two years a current recommendation has been in to lower the limit to ten fish per day and two limits per week. This is an objective that has now been gained. In areas of high concentration and use, such as the Merced River in Yosemite Valley, serious consideration should be given to a limit of not more than five fish per day.

Bait Fishing. Again we quote from Mr. Foster's report. "The main objection to the use of salmon eggs is that many undersized fish are hooked so deeply that it is impossible to release them without great mortality. A number of states have passed laws prohibiting the use of salmon eggs, and among true fishermen the practice is looked upon as unsportsmanlike. That it is very destructive cannot be questioned and considering the numbers of classes of fishermen visiting Yosemite Park, it is a practice which would have a most serious effect in many waters."

Feeder streams should be carefully studied with the view to closing them permanently for reproduction purposes. Some of these streams are definitely known to be natural hatcheries in themselves and fishing should never be permitted in them.

Avoid publicity concerning good fishing areas. Great damage has resulted in past years to formerly excellent trout waters. Such publicity brings a deluge of fishermen who, in a few weeks or even days will almost completely kill a lake or stream for the rest of the year.

I quote from a special report to the Commissioner of Fisheries by A. H. Dinsmore, Superintendent of Hatcheries, St. Johnsbury, Vermont. This report was written January 23, 1924, following an inspection of Yosemite's waters and reads, in part:

"If the park waters are to continue productive, wise regulations must be maintained. It would seem wise to close the small tributaries of all important waters, reserving them as natural breeding grounds.

"In the opinion of the writer, the park waters in the main should not be looked upon as fishing resorts where the skilled fisherman may come to fill his creel, but the catch should be **limited to the requirements of camp use**, to the end that these waters may continue for all time to furnish a choice item to the fare of the constantly increasing army of camper-tourists.

"California is a great state with a vast extent of mountain trout waters

where very liberal regulations may safely maintain for the immediate future. The Yosemite National Park is one of the great playgrounds of the Nation, where congregate a vast transient summer population. To base its fishing privileges on those allowed in the State generally must be ruinous in the near future."

In going through early reports dealing with fish cultural activities, there is this constant note of caution pointing out the need for wise regulations to conserve good trout fishing for the future. Even the early day Army men who served as acting superintendents are on record as foreseeing a very real need of practicing conservation.

A PREFABRICATED HOUSE

By Daniel Brant, Ranger Naturalist, 1947

Many visitors to Yosemite every year notice at least some of the unusual growths which occur on the trees here. The light green staghorn lichen (often misnamed moss) which is usually found on the lower branches of trees probably attracts the greatest amount of attention, but many also notice the mistletoe (**Phorodendron**) in the tops of the oak trees. Occasionally some people notice the leafless mistletoe (**Arceuthobium**) which is fairly common on the pines and often causes the tree to produce many closely packed branches called "witch's broom."

Others have also noticed that trees themselves occasionally develop strange swellings and overgrowths. The largest and most easily observed of these growths is the burl, an irregular mass which often grows on the trunks of trees. Actually the reason that these growths appear is unknown, but the condition is similar to cancer in man, and burls may be considered to be a sort of plant cancer.

In regions like Yosemite in which there is a long dry summer season, one further type of plant overgrowth is quite common—namely the insect gall. These small, rounded or oval growths are most commonly noticed on the willows, oaks and chinquapin, and are often mistaken for fruits or nuts. To date, no thorough survey has been made of the galls of Yosemite, but on the basis of studies made over broader areas it seems likely that at least a hundred types of galls are to be found here. More interesting to me than the classification of these galls is a consideration of how they are formed.

Let us think for a moment of the most common gall to be noticed in Yosemite Valley during the past season. This was a pink fuzzy gall about one inch long which appeared near the tips of the branches of the canyon live oaks (**Quercus chrysolepis**). This particular gall is caused by a type of wasp which has the tremendous name **Heteroecus dasydactyli**.

Actually the complete process by which this wasp produces a gall is not known, but this is approximately what occurs. The adult female wasp makes a small hole in the forming bud of an oak tree in the fall of the year. In this hole she deposits an egg. Early in the spring of the next season the egg hatches and the tiny wasp larva, which looks very much like a maggot, starts to eat the materials in the growing bud. At the same time, this larva apparently gives off chemicals which cause the bud to grow into a gall instead of a leaf.

Herein lies the mystery, for as yet no one has discovered the composition of these chemicals. It is believed that at least one of them is a plant

hormone. The developing gall forms an ideal home for the growing wasp. The outer portion of this home becomes hardened and thus protects the wasp from its enemies, while the central portion of the gall provides a plentiful food supply.

After the wasp has eaten enough it goes through a resting, or pupa, stage and then leaves its home to live its adult life as a winged insect. Just how some insects "learned" to use plants in this way is the subject of much speculation, but it can be shown that galls always consist of tissues which occur naturally some place in the plant. The gall insect merely stimulates the plant to build the right structures in the wrong place, and presto—a house!

RARE BIRDS

By Harry C. Parker, Associate Park Naturalist

On April 8, 1948, two youngsters, Bobby Eckart and Larry Morgenson, brought the head of a ring-billed gull (*Larus delawarensis* Ord) to the Museum. They found it about 7:00 p.m. the evening before. A coyote kept jumping and springing, drawing Bobby's attention to a portion of the meadow in front of the Tecoya housing section. When young Eckart went out to find out why the animal had been springing and jumping at a certain spot, he found the freshly severed head of the gull. The body was never found, so the head only was prepared as a specimen for the research collection. This species is rarely seen in the Park, our only records being for May 13, 1941, and the summer of 1946, both times by Mr. Walter Fitzpatrick.

Beginning April 29, and for an unknown number of days thereafter at this writing, a female blue grosbeak (*Guiraca caerulea* subsp.) was the frequenting the vicinity of Mr. Fitzpatrick's home next to the postoffice. The only previous record for the park was August 8, 1940, when several

were seen in the Valley by Mrs. Enid Michael. (H. C. P.)

NATURE NOTELET

The Sierra Nevada ground squirrel is not a climber. That is, we have never thought of this rodent as a climber of trees such as the gray squirrels, flying squirrels and chickarees. Even the name labels it a ground animal.

From time to time, Yosemite ground squirrels have been seen breaking away from their ancestral tradition. They have found that they, too can climb if they really want to. We have seen them make difficult ascents of attractively spread feeding tables designed for birds.

On April 8, 1947, we saw a ground squirrel running the length of the roof of the Museum. Reaching the stone chimney, he scarcely slackened his pace, but ran down and around the chimney and back to the roof peak. Your guess is as good as mine as to what prompted this ground squirrel to leave the ground and ascend the two story building. (R. H. A.)



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Dan Anderson